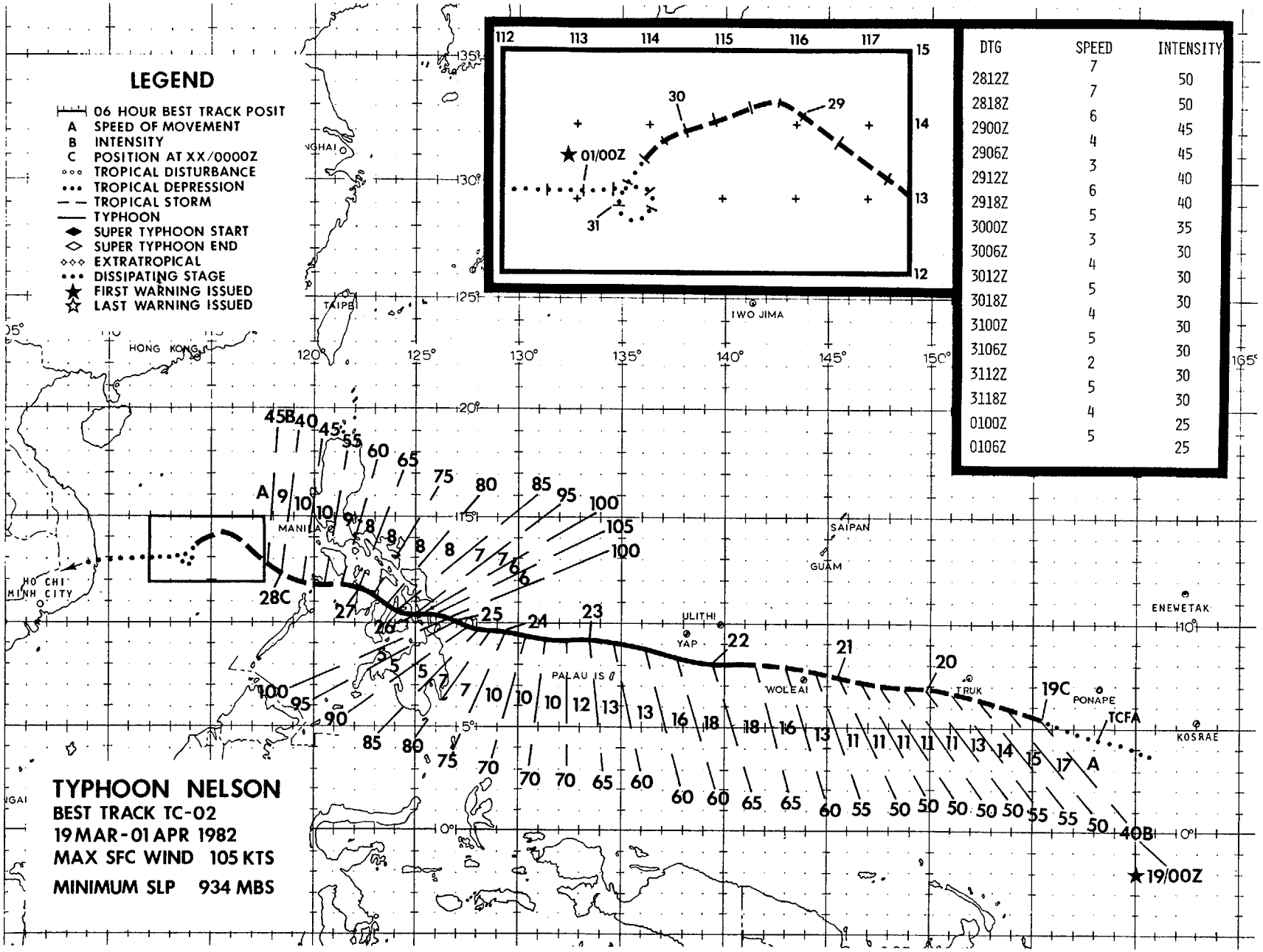


| DTG | SPEED | INTENSITY |
|---|---|---|
| 2812Z | 7 | 50 |
| 2818Z | 7 | 50 |
| 2900Z | 6 | 45 |
| 2906Z | 4 | 45 |
| 2912Z | 3 | 40 |
| 2918Z | 6 | 40 |
| 3000Z | 5 | 35 |
| 3006Z | 3 | 30 |
| 3012Z | 4 | 30 |
| 3018Z | 5 | 30 |
| 3100Z | 4 | 30 |
| 3106Z | 5 | 30 |
| 3112Z | 2 | 30 |
| 3118Z | 5 | 30 |
| 0100Z | 4 | 25 |
| 0106Z | 5 | 25 |

Typhoon Nelson was the second of three early season tropical cyclones in the western North Pacific which formed at very low latitudes southeast of Guam. Nelson, similar to Mamie (01), was a well-behaved tropical cyclone which developed and tracked westward, south of a strong mid-tropospheric ridge (centered near 15N 150E and extending west-northwest toward Taiwan).

In the initial stages of development, Nelson intensified rapidly from a weak tropical disturbance to a full-fledged tropical storm. In fact, the Tropical Cyclone Formation Alert, which was issued just 10 hours before the first warning, was preceded and followed by satellite fixes (180900Z and 181800Z) which described very little convective organization. However, at 190615Z, a reconnaissance aircraft reported flight level (1500 ft (457 m)) winds of 66 kt (34 m/sec), surface winds of 50 kt (26 m/sec), and an extrapolated sea level pressure of 993 mb.

Nelson's rapid development was in response to a very strong divergence field in the upper-troposphere located over the cyclone, where a 40 to 60 kt (21 to 31 m/sec) easterly jet branched to the northwest and southwest. However, while these strong easterlies remained near Nelson, further development was limited to minimal typhoon strength. During this entire period, Nelson moved rapidly westward at speeds reaching 18 kt (33 km/hr) on 22 April, after which a gradual slowing in forward speeds and further intensification followed. After maintaining intensities between 60 and 70 kt (31 to 36 m/sec) for 60 hours, a change in the upper air patterns allowed Nelson to deepen rapidly, reaching 100 kt (51 m/sec) within 24 hours.

At 231200Z, while Nelson was moving away from the westernmost extent of the upper-tropospheric ridge (Figure 3-02-1), nearby westerlies aloft provided a strong outflow channel to the north and northeast.

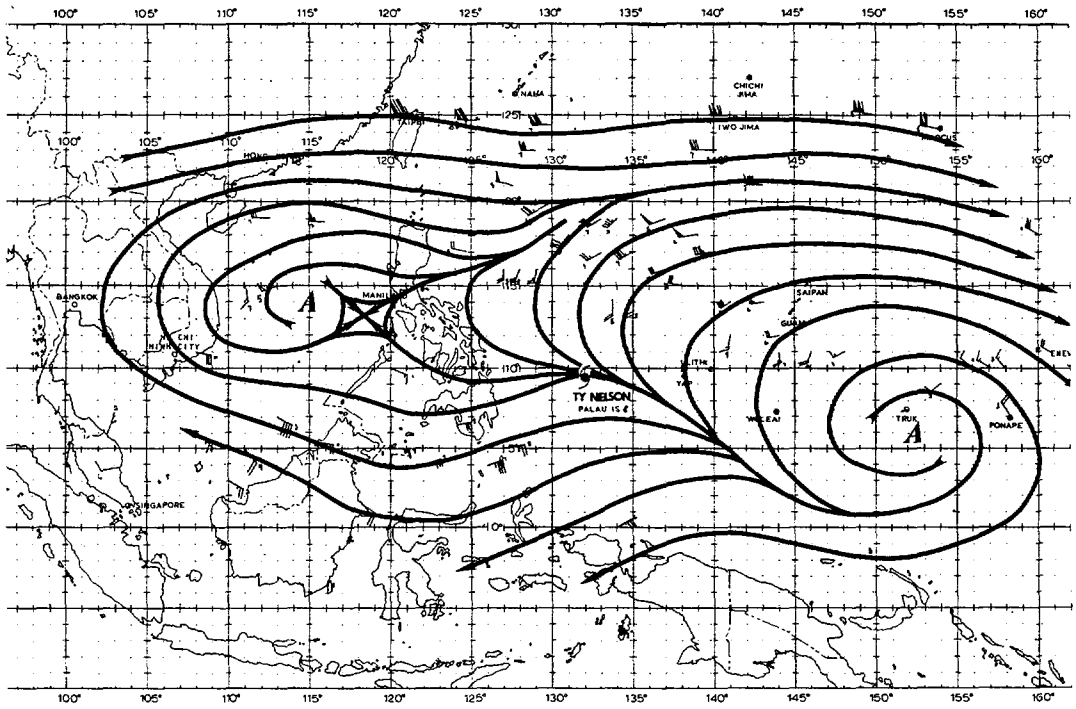


*Figure 3-02-1. 200 mb analysis at 231200Z March. Note Typhoon Nelson's position just west of the westernmost portion of the ridge and the presence of a westerly current seven degrees north which will provide a good outflow channel.*

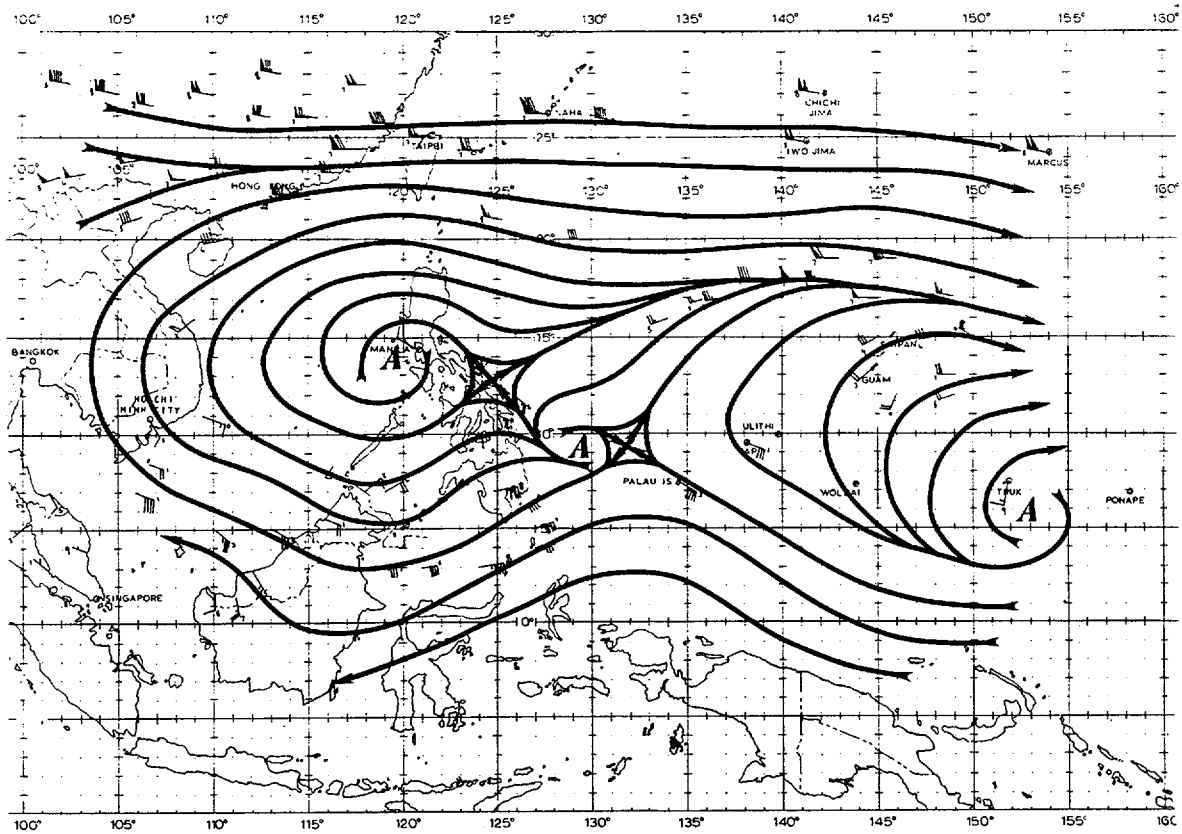


*Figure 3-02-2. 200 mb analysis at 240000Z March. Within 12 hours an appreciable change in the upper-tropospheric levels has allowed the formation of an anticyclone aloft and the beginning of the good outflow channel into the westerlies.*

As this occurred, an upper-level anticyclone was established (Figure 3-02-2) and intensified over Nelson; concurrently, Nelson responded and reached a maximum intensity of 105 kt (54 m/sec) at 251200Z (Figure 3-02-3).

On 27 March, a much weakened Tropical Storm Nelson entered the South China Sea after navigating through the south-central Philippines. On 28 March, Nelson briefly reintensified before weakening under the influence of vertical wind shear. Until 291200Z, the presence of a 500 mb short wave trough north of Nelson provided a favorable opportunity for recurvature toward the northeast. However, Nelson was quickly sheared and the low-level center meandered westward and eventually dissipated four days later. The fifty-third and final warning was issued at 010000Z April for Tropical Depression 02 (Nelson), approximately 240 nm (444 km) east of Nha Trang, Vietnam, near to the location where Tropical Storm Mamie (01) had made landfall one week earlier.

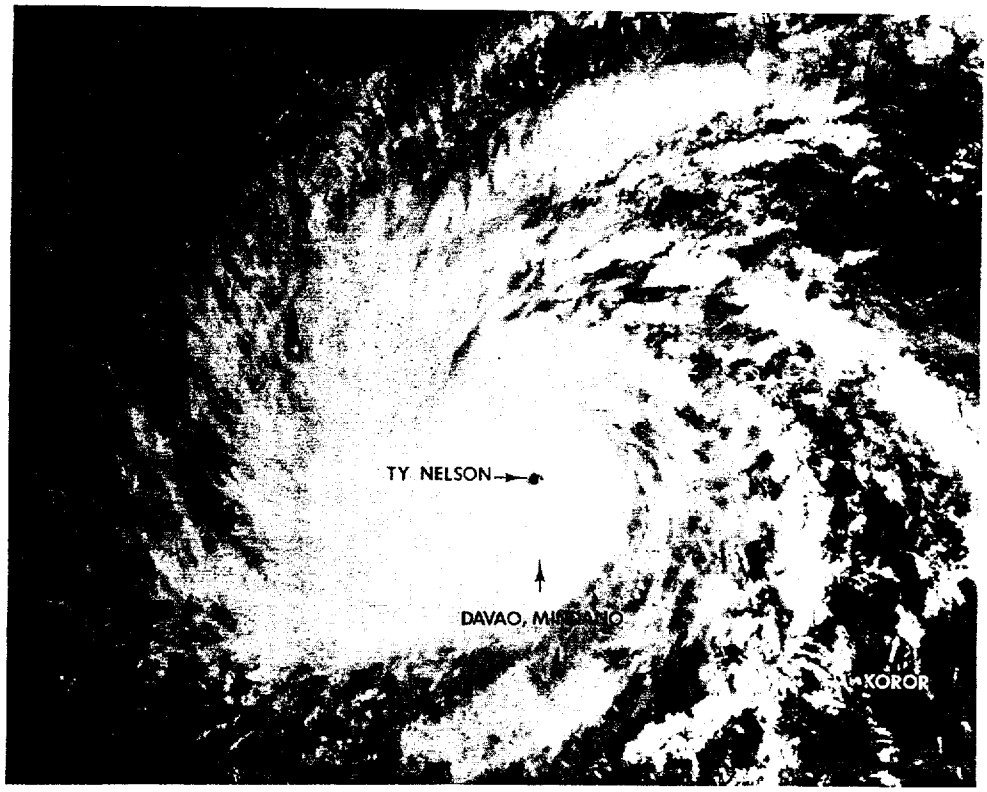


*Figure 3-02-3. Typhoon Nelson near peak intensity, east of the Philippines. Note the anticyclonic flow aloft and the well-formed outflow channel to the north, 250601Z March. (NOAA 7 visual satellite imagery)*